Utilization of Services by Persons Discharged from Involuntary Chemical Dependency Treatment

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ABSTRACT. This report compares services utilization pre-admission and post-discharge in 735 consecutive persons involuntarily committed to a chemical dependency treatment program in Washington State. Patients entering treatment were in their late 30s, had multiple health problems, previous arrests for misdemeanors or felonies, and minimal structured daily activities. Post discharge, there were decreases in the use of costly acute care services including detox, psychiatric hospitalization, and mental health crisis services. Patients who completed the program were less likely to use acute care services and were more likely to participate in outpatient treatment after discharge. The overall death rate of 29.4 per 1000 persons per year was 4 times greater than the age adjusted death rate for the US adult population. Further studies of other involuntary chemical dependency treatment programs are needed to evaluate the results of this report. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-342-9678. E-mail address: getinfo@haworthpressinc.com <Website: http://www.haworthpressinc.com>]*

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Little is known about what happens to individuals who are discharged from involuntary treatment of alcohol or substance abuse problems.[1,2] Depending on the jurisdiction, involuntary commitment of persons with alcohol or substance dependence is used by the courts in numerous ways, and may serve as an alternative to or diversion from incarceration.[3] Commitment may be part of both civil and criminal proceedings[4] and is employed to force treatment for a limited period of time and to protect the general society. Civil commitment and court diversion programs targeting intravenous drug users have been employed to reduce the number of users at risk for transmitting or contracting the AIDS virus.[5]

The purpose of this paper is to compare services utilization pre-admission and post-discharge in patients who were involuntarily committed to a chemical dependency treatment program in Washington State. A second objective is to ascertain if program completion was associated with decreased use of acute care services and increased use of outpatient treatment. In Washington State involuntary commitment is part of civil proceedings and can be used as a substitute for incarceration.

METHODS

Patient population. This study included all patients (n = 735) who were involuntarily committed to a single residential treatment facility between July 1, 1994 and January 29, 1997 and were discharged prior to March 1, 1997. The facility includes 65 beds for patients involuntarily committed. A second 65-bed unit for clients who are mentally ill with alcohol and/or substance abuse problems will not be considered here. For those entering the involuntary program for the first time, treatment is 60 days in duration and offers case management, counseling, education, activity, and vocation programming services, as well as continuing care and discharge planning. Details of the court proceedings that led to commitment were not available.

Baseline characteristics. The residential treatment facility's information system provided detailed data on patient demographic and

medical characteristics, substance abuse diagnoses, and program completion status. Alcohol and substance disorder diagnoses at admission and discharge were available for about half of individuals discharged from the program. Status at discharge was defined as complete or not complete; the reasons for non-completion included relapse, leaving treatment against medical advice, disengagement from therapy, or non-compliance.

Utilization of services. As this study examined existing databases, it was necessary to match identifiers from the residential treatment facility's client database to those in the databases used to track utilization of services. An inventory of the databases follows.

The Treatment and Assessment Report Generation Tool from the Division of Alcohol and Substance Abuse of the Washington State Department of Social and Health Services was used to examine alcohol and substance abuse services received from July 1, 1993 through May 31, 1997. Services were categorized according to the following modalities (1) residential, (2) intensive inpatient, (3) MICA residential, (4) outpatient, (5) detox, and (6) methadone. The Community Mental Health Information System, administered by the Mental Health Division of the Department of Social and Health Services, reported utilization of community mental health services from January 1994 through August 1997. The monthly number of treatment hours for crisis services and all outpatient services were obtained, although details concerning other treatment modalities were not available.

Information concerning health services paid for by Medicaid from July 1, 1993 through July 25, 1997 was obtained from the Medical Assistance Administration. Services were categorized as: (1) emergency medical, (2) psychiatric hospitalization, (3) general in-patient medical hospitalization, (4) medical outpatient, (5) prescription drugs, and (6) nursing home. The first 3 acute care services were of particular interest. The amount reimbursed for each service was calculated in 1997 dollars, and the total amount for all services was calculated.

Vital status. Vital status of individuals committed to the program was determined from 2 sources: first, death records for 1994 through 1996 obtained from the Washington State Department of Health, Center for Health Statistics, and second, hospitalization records for 1993 through 1997 obtained from the Medicaid Management Information System. Death records did not contain information on individuals who died out of state or those who died in 1997.

Statistical methods. We used the chi-square statistic to assess the univariate association between program completion status and categorical variables including baseline characteristics and utilization. The t-test was used to determine if age and length of stay differed by completion status. We used stepwise logistic regression to determine if program completion was associated with utilization after controlling for all other predictors of utilization. All statistically significant ($p < 0.05$) variables were allowed to enter the model and at the final stage, completion status was forced in the model to determine its association with the particular measure of utilization.

Age adjusted rates of death were calculated using the direct method of standardization. Total deaths for the 1996 United States population were reported by the National Center for Health Statistics.[6] The age distribution of the 1990 US population was used as the standard population.

RESULTS

Patient characteristics. Individuals who were involuntarily committed had multiple medical problems, despite being relatively young (Table 1). Prior to admission, nearly 60% had been arrested for misdemeanors, and over 30% had felony arrests. Information about admission diagnosis was available for 48% of patients. Over 90% had alcohol dependence; other dependencies included cannabis (41%), cocaine (36%), opioids (34%), and amphetamines (22%); many individuals had more than one chemical dependency.

Vital status. There were 29 deaths; 12 were due to injury including accident, homicide, or suicide, and 17 were due to medical conditions associated with substance abuse. The age adjusted death rate was 29.4 per 1000 persons per year and was 4 times higher than the age adjusted death rate of 7.4 per 1000 for the general US population, ages 15 through 80.

Alcohol, substance abuse, and community mental health services. There was a decline in the use of detox services from 63% in the year before admission to 30% in the year after discharge (Table 2). The proportion of patients in outpatient treatment increased slightly from 28% prior to admission to 31% after discharge. In the year after discharge, 41% of individuals with significant chemical dependencies did not receive alcohol or substance abuse services. Due to differential

TABLE 1. Patient Characteristics and Program Completion

Characteristic	Complete (n = 552)	Not complete (n = 183)	Chi-square	P
Age at Admission (years)	40 ± 10	36 ± 10	4.55	<0.0001
Women	30%	27%	0.64	0.42
Race			2.89	0.58
Black	6%	4%		
White	85%	85%		
Hispanic	1%	2%		
Native American	8%	8%		
Arrest Prior to Admission				
Misdemeanor	59%	61%	0.34	0.56
Felony	28%	39%	7.15	0.008
Marital Status			4.57	0.21
Single, never married	46%	52%		
Separated	12%	10%		
Divorced	30%	30%		
Married	13%	8%		
Medical History				
Diabetes	4%	4%	0.009	0.92
Pancreatitis	8%	6%	0.60	0.44
Ulcers	21%	21%	0.00	0.98
GI bleeding	17%	21%	2.33	0.13
Seizures	33%	30%	0.47	0.49
Cardiac	20%	13%	5.02	0.025
Liver disease	46%	31%	13.04	<0.0001
Respiratory disease	22%	18%	1.04	0.31
Malnutrition	28%	29%	0.03	0.86
Number Medical Conditions			3.29	0.19
None	26%	31%		
One	19%	23%		
Two or more	54%	46%		
Activity Level Prior to Admission			10.40	0.015
Full time employment	7%	4%		
Part time employment	6%	1%		
Day treatment	5%	8%		
No structured activities	82%	87%		

* t-test

follow-up, the number of individuals declined from 735 in the year after discharge to 577 in the 2nd year after discharge. Differential follow-up refers to the fact that an individual discharged in 1994 had 3 years of follow-up, whereas one discharged in 1997 had only a year.

Community mental health services utilization was similar in the year prior to admission and the year after discharge, although crisis services were used less often in the year after discharge (Table 2). For clients receiving services, the median annual number of hours of all services but crisis increased from 17.0 in the year prior to admission to 18.2 in the year after admission, and ultimately decreased to 13.1 in

year 2 and 10.2 in year 3. For those who received mental health crisis services, the median annual number of hours changed from 2.0 in the year prior to admission to 2.2 in the year after and to 2.9 and 2.5 in years 2 and 3, respectively. The proportion of clients receiving crisis services declined steadily from the year prior to admission to 3 years after discharge. However, the mean number of hours of crisis services increased for those receiving services.

Medicaid services. From the year before admission to 3 years after discharge, the utilization of Medicaid services declined significantly (Table 3). There were decreases in the use of the relatively costly acute

TABLE 2. Utilization of Substance Abuse and Community Mental Health Services

Service	Year before admission	1 year after discharge	2 years after discharge	3 years after discharge
Substance Abuse (n)	735	735	577	355
Detox	63%	30%	20%	16%
Mentally ill chemically abusing residential	6%	4%	2%	0.4%
Other residential	15%	20%	10%	4%
Intensive inpatient	8%	3%	2%	1%
Methadone	0.7%	0.7%	0.9%	0.7%
Outpatient	28%	31%	15%	10%
Differential diagnosis	2%	0.4%	0.2%	0%
None	21%	41%	66%	75%
Mental Health (n)	735	735	577	355
All but crisis	37%	38%	32%	18%
Crisis	33%	22%	16%	11%
None	52%	57%	65%	78%

TABLE 3. Utilization of Medicaid Services

Service	Year before admission	1 year after discharge	2 years after discharge	3 years after discharge
(n)	735	735	577	355
Emergency Medical	56%	51%	32%	21%
Prescription Drugs	64%	69%	53%	41%
Psychiatric Hospitalization	16%	9%	7%	3%
General Medical				
In-patient hospitalization	31%	22%	15%	10%
Outpatient	62%	65%	44%	30%
Nursing home	2%	2%	2%	1%
Any Service	74%	78%	60%	47%

care services, including emergency department visits, psychiatric hospitalization, and in-patient hospitalization.

Mean and median reimbursements for services paid for by Medicaid are shown in Table 4, which displays the actual dollars paid to providers, with the N column indicating the numbers of patients who received services during the time period. From the year prior to admission to the year after discharge, there were significant declines in median reimbursements for emergency medical services, medications, psychiatric hospitalization, outpatient medical services, and for all services. However, increases with respect to in-patient hospitalization and nursing home care costs for clients receiving these services were

TABLE 4. Reimbursement for Medicaid Services

Service	Mean($)	SD($)	Median($)	N
Emergency Medical				
1 year before	1461.13	2291.99	704.80	406
1 year after	1169.71	1932.42	578.21	362
2 years after	1253.70	2704.94	533.23	182
3 years after	1021.09	2319.83	379.10	68
Medications				
1 year before	851.61	1346.58	411.08	467
1 year after	869.97	1485.09	384.68	507
2 years after	937.83	1364.78	453.48	289
3 years after	605.18	837.97	258.10	125
Psychiatric Hospitalization				
1 year before	6817.15	7251.90	4348.90	120
1 year after	4217.53	2900.58	3935.59	55
2 years after	4184.11	3891.71	3893.19	22
3 years after	3817.14			1
Inpatient Medical Hospitalization				
1 year before	4006.60	8964.77	1496.17	225
1 year after	4543.58	7663.78	2130.40	155
2 years after	4894.55	8912.57	1853.55	74
3 years after	6062.10	7811.08	2074.03	25
Outpatient Medical				
1 year before	1696.50	3636.01	477.03	455
1 year after	1461.41	3124.21	387.42	479
2 years after	989.93	1708.09	279.53	241
3 years after	592.32	1133.46	164.22	101
Nursing Home				
1 year before	5633.79	6280.81	3810.76	13
1 year after	7517.57	9760.10	3941.47	12
2 years after	6814.60	5997.63	5748.21	6
3 years after				0
All				
1 year before	7065.47	10534.32	3343.62	544
1 year after	4768.42	8023.33	2057.10	571
2 years after	3920.04	6975.39	1752.85	326
3 years after	2458.79	4889.16	607.35	149

also apparent, although the proportion of patients hospitalized decreased.

The total cost of all Medicaid services in the year prior to discharge was approximately $3.8 million; in the year after discharge it was $2.7 million, a 29% reduction. Of note were large decreases from pre-admission to post discharge for psychiatric hospitalization ($0.8 to $0.3 million); there were also declines for emergency medical services ($0.6 to $0.4 million) and in-patient hospitalization ($0.9 to $0.7 million).

Combinations of services. In the year prior to admission, 94% of patients used one or more services categorized as chemical dependency, community mental health, or Medicaid, and in the year after admission, 88% did. The combination of chemical dependency and Medicaid services was provided to 62% of clients in the year prior to admission and 57% in the year after discharge. Less than 10% of patients used only a single service during the 2 time periods.

Program completion and service utilization. The mean length of stay for all patients was 65 ± 30 days, with a median stay of 59 days. Overall, 75% completed the program; the mean length of stay was 71 ± 28 days for those who completed the program and it was 47 ± 27 days for those who did not. The most common reasons for failure were non-compliance, disengagement from therapy, and leaving against medical advice.

The utilization of key services in the year after discharge was compared for those completing and not completing the program (Table 5). Clients who completed the program were less likely to be hospitalized for medical reasons and were also less likely to receive mental health crisis services. Those who completed the program were more than twice as likely to receive outpatient chemical dependency treatment than their counterparts who did not complete treatment. Program completion was not associated with the use of detox, emergency medical services, or psychiatric hospitalization. The proportions of deaths in the 2 groups were similar; 4.4% in the in the group not completing treatment, and 3.8% in the group completing treatment. We used logistic regression to examine the association between program completion and utilization. Variables in Table 1 as well as whether the service of interest was received in the year prior to admission were covariates. For most services, the univariate and multivariate odds ratios and 95% confidence intervals were similar.

TABLE 5. Program Completion Status and Service Utilization in the Year Following Discharge Odds Ratio and 95% Confidence Intervals

Service	Completed (n = 552)	Not completed (n = 183)	Univariate odds ratio	Multivariate odds ratio
Detox[1]	30%	32%	0.91 (0.64-1.31)	0.91 (0.61-1.33)
Chemical dependency outpatient[2]	32%	18%	2.19 (1.44-3.34)	2.33 (1.51-3.60)
Mental health crisis[3]	20%	30%	0.58 (0.40-0.85)	0.67 (0.45-1.01
Emergency medical[4]	50%	54%	0.86 (0.61-1.20)	0.97 (0.67-1.41)
Psychiatric hospitalizations[5]	9%	11%	0.79 (0.46-1.38)	0.89 (0.50-1.61)
Inpatient medical hospitalization[6]	15%	23%	0.60 (0.40-0.91)	0.56 (0.36-0.88)

[1]Adjusted for in order of entry, use in the previous year, history of seizures, and presence of ulcers.
[2]Adjusted for in order of entry, number of illnesses at baseline, female gender, and use in the previous year.
[3]Adjusted for in order of entry, use in the previous year and race.
[4]Adjusted for in order of entry, use in the previous year and history of seizures.
[5]Adjusted for use in the previous year, only.
[6]Adjusted for in order of entry, use in the previous year, history of seizures, race, and absence of prior felony arrests.

DISCUSSION

In this evaluation of service utilization and expenditures in individuals discharged from involuntary treatment for substance abuse, the overall death rate for those discharged from treatment was four times higher than that of the general US population. Patients entering treatment tended to have multiple health problems, previous arrests for misdemeanors or felonies, and minimal structured activities. Overall, from the year before admission to up to three years after discharge, there were declines in the cost and utilization of all services, including costly acute care services. Patients who completed the program were less likely to use acute care services and more likely to participate in outpatient treatment after discharge.

Even though more than 60% of states have programs for involuntary chemical dependency treatment, there are few, if any, published evaluations of these programs.[3,7] Most of the existing literature on involuntary treatment has considered legal aspects of civil commitment or coercive versus voluntary treatment, with almost no attention paid to treatment outcomes.[1,7] Involuntary treatment for alcohol or substance disorders has been characterized as a hybrid of medical and legal approaches.[7] The program evaluated in this report included case

management, counseling, educational, activity, and vocational programming services, as well as continuing care and discharge planning.

The results of this study must be considered in the light of several limitations. The tracking of utilization relied on administrative data sources and the ability to link those data with the treatment facility's database. It was not possible to identify services paid for by other organizations, most notably the Department of Veterans Affairs. For these reasons, the cost and utilization of services are likely to have been underestimated. Several important types of data were also missing or deficient. For example, we were unable to obtain information about felony or misdemeanor arrests in the time after discharge. Given the significant proportion of patients with a history of misdemeanor or felony arrests, there most likely was some arrest activity after discharge. These events can be costly, particularly when they result in judicial proceedings and/or incarceration. If program completion was associated with fewer arrests, considerable savings could be incurred. Also, there was no information on alcohol consumption or substance use in the post discharge period. Finally, little was known of the circumstances of commitment and whether they influenced outcome.

Another weakness of the study was the absence of a control or comparison group. For a variety of reasons, including ethical ones, it would be next to impossible to conduct a randomized trial of involuntary treatment, although it may be feasible to identify a group of individuals comparable to those undergoing involuntary treatment. Such a study design could not control for all differences between the 2 groups, but it would at least provide a basis for making comparisons. Without having a comparable group of patients who were not committed, it is difficult to say that treatment resulted in improved outcomes. Individuals may have improved despite not receiving treatment, although given the life circumstances of these individuals, this is highly unlikely.

Despite these limitations, this report demonstrated a significant decline in service utilization after discharge, as well as an association between program completion and services reduction. Hopefully, other states will evaluate their involuntary treatment programs, so that the results of this study can be placed in perspective. In conclusion, completion of involuntary treatment by individuals with severe substance abuse disorders may result in lower health care costs, primarily through reduced use of emergency department, hospital, and other acute care services.

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